

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A centrifugal fan (~~110, 310, 410~~) that takes in gas from a rotational axis direction and blows the gas out in a direction that intersects the rotational axis (~~O-O~~), comprising:
 - an impeller (~~113, 313, 413~~) that rotates about the rotational axis; and
 - a bell mouth (~~112, 312, 412~~) having an inlet (~~112a, 312a, 412a~~) arranged so that it opposes said impeller, and a recessed part (~~112d, 312d, 412d~~) that forms a recessed negative pressure space (~~S1, S2, S3~~) around said inlet facing the impeller side, and that guides the inlet gas to said impeller.
2. (Currently Amended) The centrifugal fan (~~110, 310, 410~~) as recited in Claim 1, wherein
 - said bell mouth (~~112, 312, 412~~) has a flat part (~~112e, 312e, 412e~~) that extends on the outer circumferential side of said recessed part (~~112d, 312d, 412d~~) in the radial direction in a direction that intersects the rotational axis (~~O-O~~), and a curved part (~~112b, 312b, 412b~~) that extends on the inner circumferential side in the radial direction of said recessed part toward the impeller side, and that forms said inlet (~~112a, 312a, 412a~~); and
 - the portion (~~C, C', C''~~) of said recessed part that is most recessed on the impeller side is positioned on the impeller side of a connecting portion (~~D, D', D''~~) between said flat part and said recessed part, and is positioned on the impeller side of a connecting portion (~~B, B', B''~~) between said curved part and said recessed part.
3. (Currently Amended) The centrifugal fan (~~110, 310, 410~~) as recited in Claim 2, wherein
 - the ratio of a length (~~er, er'~~) from the center of the rotational axis (~~O-O~~) to the connecting portion (~~D, D', D''~~) between said flat part (~~112e, 312e, 412e~~) and said recessed

part (~~112d, 312d, 412d~~) with respect to an outer radius (~~ϕr , $\phi r'$~~) of said impeller, i.e., a length ratio (~~$\phi r/\phi R$, $\phi r'/\phi R'$~~), is greater than or equal to 0.8 and less than 1.4.

4. (Currently Amended) The centrifugal fan (~~110, 310, 410~~) as recited in Claim 2 ~~or Claim 3~~, wherein

an angle (~~θ , θ''~~) formed in the connecting portion between said flat part and said recessed part by a plane (~~115, 315, 415'~~) formed on the side opposite the impeller by virtually extending said flat part (~~112e, 312e, 412e~~) to the inner circumferential side and the surface extending from the portion (~~C, C', C''~~) of said recessed part (~~112d, 312d, 412d~~) that is most recessed on the impeller side to the connecting portion (~~D, D', D''~~) between said flat part and said recessed part is greater than 60° and less than 90°.

5. (Currently Amended) The centrifugal fan (~~110, 310, 410~~) as recited in ~~any one claim of Claim 2 through Claim 4~~, wherein

the plane (~~115, 315, 415'~~) formed on the side opposite the impeller by virtually linking the connecting portion (~~D, D', D''~~) between said flat part (~~112e, 312e, 412e~~) and said recessed part (~~112d, 312d, 412d~~) with the connecting portion (~~B, B', B''~~) between said curved part (~~112b, 312b, 412b~~) and said recessed part is substantially orthogonal to the rotational axis (~~Θ , Θ~~).

6. (Currently Amended) The centrifugal fan (~~310~~) as recited in ~~any one claim of Claim 2 through Claim 5~~, wherein

said bell mouth (~~312~~) further has a plurality of protruding parts (~~312e~~) arranged in the connecting portion (~~B'~~) between said curved part (~~312b~~) and said recessed part (~~312d~~) and aligned spaced apart in the circumferential direction of said inlet (~~312a~~), and that protrude outward on the impeller side of the connecting portion between said curved part and said recessed part.

7. (Currently Amended) The centrifugal fan (310) as recited in Claim 6, wherein a portion (G') of said protruding parts (312e) that protrude most on the side opposite the impeller is positioned more on the side opposite the impeller than a connecting portion (D') between said flat part (312e) and said recessed part (312d).

8. (Currently Amended) The centrifugal fan (110, 310, 410) as recited in ~~any one claim of Claim 1 through Claim 7~~, wherein said recessed part (112d, 312d, 412d) is annularly formed to surround ~~so that it surrounds~~ said inlet (112a, 312a, 412a).

9. (Currently Amended) The centrifugal fan (110, 310) as recited in ~~any one claim of Claim 1 through Claim 8~~, wherein said impeller (113, 313) has a main plate (131, 331) that rotates about the rotational axis (O-O), a plurality of blades (133, 333) annularly arranged about the rotational axis and whose end parts on the side opposite the inlet are each fixed to said main plate, and an annular side plate (132, 332) that connects with the end parts on the inlet side of said plurality of blades; and the surface of said recessed part (112d, 312d) on the impeller side has a shape that follows along said side plate.

10. (Currently Amended) The centrifugal fan (110, 310) as recited in Claim 9, wherein the end part of said curved part (112b, 312b) on the impeller side is arranged on the inner circumferential side in the radial direction of the end part of said side plate (132, 332) on the inlet side, and is arranged so that it overlaps in the rotational axis direction the end part of said side plate on the inlet side.

11 (Currently Amended) The centrifugal fan (~~110, 310, 410~~) as recited in ~~any one claim of Claim 1 through Claim 8~~, further ~~provided with~~: comprising

a scroll shaped housing (~~111, 311, 411~~) having an opening (~~111a, 311a, 411a~~) formed so that it opposes said impeller (~~113, 313, 413~~), and a gas outlet (~~111b, 311b, 411b~~) formed on the outer circumferential side, and that houses said impeller;

~~wherein,~~

said bell mouth (~~112, 312, 412~~) is ~~provided~~ being arranged so that said inlet (~~112a, 312a, 412a~~) opposes said opening of said housing.

12. (Currently Amended) The centrifugal fan (~~110, 310~~) as recited in Claim 9 ~~or Claim 10~~, further ~~provided with~~: comprising

a scroll shaped housing (~~111, 311~~) having an opening (~~111a, 311a~~) formed so that it opposes said impeller (~~113, 313~~), and a gas outlet (~~111b, 311b~~) formed on the outer circumferential side, and that houses said impeller;

~~wherein,~~

said bell mouth (~~112, 312~~) is ~~provided~~ being arranged so that said inlet (112a, 312a) opposes said opening of said housing; and

interblade parts (134, 334) positioned between each of said plurality of blades (~~133, 333~~) of said main plate (~~131, 331~~) are cut out at least at the blade front part in the rotational direction of the blade.

13. (New) The centrifugal fan as recited in Claim 3, wherein

an angle formed in the connecting portion between said flat part and said recessed part by a plane formed on the side opposite the impeller by virtually extending said flat part to the inner circumferential side and the surface extending from the portion of said recessed part that is most recessed on the impeller side to the connecting portion between said flat part and said recessed part is greater than 60° and less than 90°.

14. (New) The centrifugal fan as recited in Claim 2, wherein
said impeller has a main plate that rotates about the rotational axis, a plurality of
blades annularly arranged about the rotational axis and whose end parts on the side opposite
the inlet are each fixed to said main plate, and an annular side plate that connects with the end
parts on the inlet side of said plurality of blades; and
the surface of said recessed part on the impeller side has a shape that follows along
said side plate.

15. (New) The centrifugal fan as recited in Claim 3, wherein
said impeller has a main plate that rotates about the rotational axis, a plurality of
blades annularly arranged about the rotational axis and whose end parts on the side opposite
the inlet are each fixed to said main plate, and an annular side plate that connects with the end
parts on the inlet side of said plurality of blades; and
the surface of said recessed part on the impeller side has a shape that follows along
said side plate.

16. (New) The centrifugal fan as recited in Claim 8, wherein
said impeller has a main plate that rotates about the rotational axis, a plurality of
blades annularly arranged about the rotational axis and whose end parts on the side opposite
the inlet are each fixed to said main plate, and an annular side plate that connects with the end
parts on the inlet side of said plurality of blades; and
the surface of said recessed part on the impeller side has a shape that follows along
said side plate.

17. (New) The centrifugal fan as recited in Claim 2, further comprising
a scroll shaped housing having an opening formed so that it opposes said impeller and
a gas outlet formed on the outer circumferential side, and that houses said impeller;
said bell mouth being arranged so that said inlet opposes said opening of said housing.

18. (New) The centrifugal fan as recited in Claim 3, further comprising a scroll shaped housing having an opening formed so that it opposes said impeller and a gas outlet formed on the outer circumferential side, and that houses said impeller; said bell mouth being arranged so that said inlet opposes said opening of said housing.

19. (New) The centrifugal fan as recited in Claim 8, further comprising a scroll shaped housing having an opening formed so that it opposes said impeller and a gas outlet formed on the outer circumferential side, and that houses said impeller; said bell mouth being arranged so that said inlet opposes said opening of said housing.